DOCUMENT RESUME

ED 326 208   IR 014 752

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TITLE   An Analysis of Evaluations of Interactive Video.
PUB DATE   Mar 90
NOTE   16p.; Paper presented at the International Conference
                  on Computers and Education (5th, Brussels, Belgium,
                  March 20-22, 1990).
PUB TYPE   Speeches/Conference Papers (150) --

EDRS PRICE   MF01/PC01 Plus Postage.
DESCRIPTORS   *Academic Achievement; Adult Education; *Computer
                  Software Evaluation; *Evaluation Criteria; Formative
                  Evaluation; Higher Education; Hypermedia;
                  Instructional Design; *Interactive Video; *Research
                  Methodology; Secondary Education; *Student
                  Attitudes

ABSTRACT
                  This review of evaluations of interactive video
completed from 1985 to 1989 includes only those evaluations that
pertain to the instructional use of interactive video, are included
in a database, and are in the public domain. Examination of 19
evaluations reveals that many of them were conducted over brief
amounts of time, and that the programs being evaluated were not
adequately described. Results on attitude were generally positive,
whereas results on achievement were mixed. It is easier to achieve
positive data on attitude since many individuals are impressed by the
mechanism and characteristics of interactive video equipment. Mixed
results on achievement can be attributed to the many possible
variations in the wide range of design characteristics for
interactive video which render any kind of general statement about
achievement invalid. Formative evaluation continues to be an
important need in the design of interactive video. Finally,
interactive video allows an individual to select and sequence
instruction in a way that is meaningful to him or her. Such learning
is usually non-sequential and non-linear, and requires a fundamental
change in approach to designing instruction. Information on the 19
individual reviews is summarized in tabular format. (DB)

AN ANALYSIS OF EVALUATIONS OF INTERACTIVE VIDEO

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MARCH, 1990

BELGIUM PAPER

Last year the community of physicists was presented with the startling news of the production of fusion in a simple apparatus. This discovery offered the promise of the solution of the world's energy problem. It was the breakthrough of the century--if not the millennium. Within weeks of the announcement of the discovery, it became evident that this revolutionary breakthrough may have been a will-of-the-wisp.

Perhaps no group should be better prepared to deal with situations such as this than educators where breakthroughs come and go with regularity. There is a continuing supply of persons who are ready to step forward with a remedy for the ills of education. To some extent, it is the overzealous predictions of the proponents which stimulate the cynics to voice their recurrent slogan "It won't work."

Similar to other innovations, interactive video has been accompanied by many claims. Vendors and others who are invested in it, either economically or psychologically, have been prone to make assertions about the efficacy of interactive video.

For those who are seriously interested in interactive video, there is a useful body of information available in the published evaluation reports on interactive video. These reports advance our analysis of interactive video beyond the level anedotes and conjecture.

Five years ago I reviewed all of the evaluations of interactive video I could find which met three conditions:

1. All reports included pertain to instructional use of interactive video;

2. All were databased. Reports which contain only anecdotal or subjective discussions were not included.

3. All reports were in the public domain.

This paper returns to the evaluation literature on IV which meets these three criteria. The intent is to examine how the studies published between 1985 and the present

corroborate, contradict, and expand the conclusions reached as a result of the earlier study.

This paper will be structured as follows: The first section will be a descriptive profile of the reports; second will be a review of the conclusions; next will follow a discussion of the way the newest studies corroborate, contradict, or extend the understanding of the earlier analysis; and finally, some general considerations about evaluation and the craft of interactive video production and use will be presented.

1. There are several points which were made in the earlier analysis which are reinforced by this study.

A. The first of these is that general statements about the effectiveness of interactive video are invalid. Individuals who discuss interactive video, not infrequently, are prone to make categorically statements about it. For example, they will indicate that interactive video is more effective in achieving learning outcomes and other methods. Or, they will discuss the ways in which interactive video is effective. It is important to understand that there can be considerable variation on a wide range of design characteristics under the rulebook of interactive video. This renders any kind of general statement as invalid.

B. This analysis demonstrates that there is more consistency in a results on attitude than there is on achievement. This is not surprising given the fact that there are, as mentioned above, many differences in the actualities of the instructional treatments which are categorized "interactive video. " It is easier to achieve positive data on attitude since many individuals are impressed by the mechanism and characteristics of interactive video equipment.

2. There are some problems in the studies which are reported which bear description.

A. The first of these is the fact that many of the studies were for a quite brief time duration. It is not unusual for studies to be of just a few sessions. Given the

attractiveness of the cosmetic features of interactive video, it is particularly important that studies involving longer durations be provided when individuals have opportunities to acclimate to the technology.

B. Many of the studies maintain 1) a low level of description with regard to the kind of interactive program design which was provided. This continues to be a problem, especially in those instances where there is indication of positive effects.

3. There are some general issues which the study of these evaluations raises.

A. It is very important to have a higher level of common concepts and terminology. Efforts to provide a synthesis of the research are hindered by differences in the language individuals use.

B. Formative evaluation continues to be an important need in the design of interactive video.

C. Another aspect which needs to be considered is the need for more studies which look at interactive video in contextual applications. Ultimately, interactive video is used in real life situations where it is typically inserted into an organization or setting which has its own culture, traditions and customs.

It is important for us to begin to understand how these factors impinge on the issue of the consequence of interactive video. We rarely would begin at the first card and proceed sequentially through them. Rather we access cards depending on our particular interest and we may select among these cards in any one of a virtually infinate number of patterns. What this means is that Hypercard is a nonlinear structure. If we are doing an instructional task and which to make use of Hypercard, it is certainly possible to devise an instructional program which uses Hypercard in a linear way. The way that we often think about instruction has been highly influenced by a book which contains a single path to the information. Those who attempt to explicate a particular body of knowledge are inclined to see a pathway through the information which is deemed to be the appropriate way of treating the subject. If we recognize that in real

world learning, then quite frequently we do not learn in a sequential, linear pattern. The person who learns car repair from a parent or friend is unlikely to begin with a discussion of the general features of a car and proceed sequentially through the various automotive subsystems, as he or she might do if they were provided with formal instruction on automotive technology. Rather, what they are more likely to do is to plunge into a task they need to perform and continue in this manner, picking up techniques an knowledge as they proceed. As I have been involved in the design of instruction using Hypercard, I find myself confronting some biases which I realize are more deep-seated than I would wish them to be. I find that I have to trust the learner and must be willing to acknowledge that the learner can select and sequence the instruction in ways which are meaningful to him or her which may not be the pathway which seems the most desirable to me. Certainly we can recognize that the individual who has the understanding of the subject matter does have some broader knowledge about the entire sequence. But we probably overstate the issue of pathways.

PRINCIPAL INVESTIGATOR AND DATE:	INSTRUCTION FOR:	CONTENT	EVA. TYPE:	AMOUNT OF INFO. ON IV PROGRAM:	IV COMPARED WITH	n	AMOUNT OF TIME	OUTCOME VARIABLES:	REPORTED BENEFITS	STAT TEST?
Evans, 1989	Adults	Cancer Treatment	F	H	No comp	?	?	None	--	No
Moore, 1989	Adults	Nutrition info	S	L	Control	77	7 wks	Food purchases	Yes	Anal of covar
Bosco, 1988	Adults	Health/ Safety	S	L	Classroom/videotape	208	3 hrs	a Achievement b Attitude c Opinion toward training	a Yes b Yes c Yes	a: t test b: No c: No
Cordes, 1988	College	Physics	S	M	No comp	23 Stu. 7 Fac	Approx. 1-2 hrs	a Student Attitude b: Teacher Attitude	a: Yes b Yes	a: No b No
Rinkelman, 1988	College	Therapeutic Communication	S	L	Lecture/discussion with videotape	75	30 min	a Achievement b Anxiety	a. Yes b No	a: Anal. of covar. b: Anal. of covar.
Hofmeister, 1988	High School	Science	F, S	L	Control Group	15	?	Achievement	Yes	No
Branch, 1987	College	Physiology	S	L	Control	87	1 class session	a Achievement Test b Attitude	a. No b 3 of 16 items	a: Anal. of Var. b t test

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PRINCIPAL INVESTIGATOR AND DATE:	INSTRUCTION FOR:	CONTENT	EVA TYPE	AMOUNT OF INFO ON IV PROGRAM:	IV COMPARED WITH	n	AMOUNT OF TIME	OUTCOME VARIABLES:	REPORTED BENEFITS	STAT TEST?
Hawkins, 1987	7th, 9th, 11th, grade students	Health Ed	S	M	No comp	2,372	14 mos	a Attitude b Self-reports of behavior	a Yes b Yes	a: No b: No
Lawrence, 1987	College	Reading Instruction	S	H	Traditional	36	1 class session	Achievement Test	No	Anal. of Var
Meajnor, 1987	Industry	Electronic Principles & Measurement	F	H	--	80	1 lesson	--	--	--
Mellin, 1987	Junior high	Scientific Inquiry Skills	F	H	No comp	116	2 sessions of use/un-specified time	--	--	--
Olsen, 1987	High school students	Chemistry	F	H	--	132	approx 4 hrs	--	--	--
Weathers, 1987	High school students	Film	S	L	Classroom instruction	70	2 wks	a Objective test b Video test	a No b Yes (control)	a Anal. of covar b Anal. of covar.

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PRINCIPAL INVESTIGATOR AND DATE:	INSTRUCTION FOR:	CONTENT:	EVA. TYPE:	AMOUNT OF INFO. ON IV PROGRAM:	IV COMPARED WITH:	n	AMOUNT OF TIME:	OUTCOME VARIABLES:	REPORTED BENEFITS	STAT TEST?
Abrams, 1986	College	Basic Photograph	S	L	Linear Videotape	128	Approx. 1 hr.	a: Achievement b. Attitutde	a: Yes b: Yes	a: No b: No
Grover, 1986	Adults	ESC	S	M	Linear groups	69	90 min	Attitude	No	Chi-square
Kelly, 1986	Mildy handicapped & remedial high school students	Math	S	H	Traditional Basal Text	28	10-20 min lessons	a: Achievement Test b. Time-on-task c: Student attitudes toward math computers	a: Yes b: Yes c: No	a: Anal. of covar. b: Mann Whitney c: Anal. of Var.
LeBrasseur, 1986	Teacher Ed students	Ed. Psych.	F, S	H	--	57	1 hr	Attitude	Yes	No
Boen, 1985	College	Study Skills	S	M	"Traditional Teaching Methods"	32	Approx 30 min	a Achievement b Time to complete lesson	a: Yes b: Yes	a: t test b No
Levenson, 1985-86	College	Smokeless Tobacco		L	1. Individual Video Tape 2. Group Videotape 3 Control	205	Approx. 30 min.	a: Attitude b. Achievement	a: Yes b: Yes	a: Anal. of Var. b: Chi-square

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EVALUATION TYPE:

FORMATIVE........................6

SUMMATIVE......................1 4

INSTRUCTION FOR:

AMOUNT OF TIME
OF TREATMENT

THIRTY MINUTES.........................3

ONE-TWO HOURS 4

THREE HOURS 1

FOUR HOURS............................1

ONE CLASS SESSION 3

TWO CLASS SESSIONS..................1

TEN 30 MINUTE SESSIONS............1

TWO WEEKS..............................1

SEVEN WEEKS...........................1

FOURTEEN MONTHS.....................1

UNKNOWN 2

OUTCOME

TYPE OF VARIABLE	IV "WINS"	IV DOES NOT "WIN"
ACHIEVEMENT	7	4
ATTITUDE	8	4
OTHER	3	1